

Remarks

Response to Amendment

In the present communication, the Examiner argued that Applicants' remarks filed on November 18, 2008, were not fully responsive to the prior Office Action dated May 14, 2008, because Applicants did not explain how the amendments overcome the applied prior art. The following remarks supplement those submitted on November 18, 2008, and are believed by Applicants to be fully responsive to the previous rejections.

Claim rejections under U.S.C. 103

Claims 35-43, 52-53, 56-60, 63-70, 73, 79-81, 84-85, 95, 97, 98, 100-102, 108-114, 116-119, 121-123, 125-127, and 133-140 were rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,755,750 to Petruska et al. in view of US Patent 5,215,086 to Terry or US Patent 5,540,730 to Terry. As mentioned in Applicants' remarks submitted on November 18, 2008, while not necessarily agreeing with these rejections, in order to expedite the issuance of a patent on subject matter believed to be allowable, Applicants have amended independent claims 35, 87, and 111 to include additional features not believed to be taught by the art of record, as discussed in detail below, and have canceled claims 121-140. Applicants refer the Examiner to the remarks submitted on November 18, 2008, for a discussion of the support for these amendments in the specification as filed.

Independent claim 35

The amendments made to independent claim 35 include that the apparatus comprises "a plurality of electrode devices, configured to be coupled to respective longitudinal sites of longitudinal nervous tissue of the subject having first and second types of nerve fibers, through which body-generated action potentials

propagate at first and second velocities, respectively, wherein two of the plurality of electrode devices are configured to be coupled at adjacent ones of the longitudinal sites that are separated by at least 2 mm," and that the control unit is configured to "sequentially drive the electrode devices to apply to the nervous tissue [[a]] respective currents, with delays between driving each of the electrode devices that are timed to the first velocity of the propagation of the body-generated action potentials so as to minimize undesired blocking of the body-generated action potentials propagating through the first type of nerve fibers."

In contrast, Petruska neither teaches nor suggests a plurality of electrode devices configured to be coupled at adjacent ones of longitudinal sites that are separated by at least 2 mm, and a control unit configured to sequentially drive the electrode devices to apply respective currents, with delays between driving each of the electrode devices that are timed to the first velocity of the propagation of the body-generated action potentials so as to minimize undesired blocking of the body-generated action potentials propagating through the first type of nerve fibers, as recited in claim 35. Even if one were to construe Petruska's "pair of electrodes 10 and 11 . . . spaced 2.0 to 4.0 millimeters apart" (col. 4, lines 3-10, and Fig. 1) as the "plurality of electrode devices" recited in claim 35, Petruska's signal generator 15 (col. 4, line 14, and Fig. 1) is not configured to sequentially drive electrodes 10 and 11 to apply respective currents, as recited in claim 35. Instead, signal generator 15 drives electrodes 10 and 11 to simultaneously apply a single current, with one of the electrodes serving as the cathode and the other as the anode: "The smaller electrode 11 acts as the conduction. [sic] blocking anode while the larger electrode 10 serves as the cathode, as a result of connection to the corresponding polarity output terminals of a DC signal generator 15" (col. 4, lines 11-13). Furthermore, because

Petruska does not teach "delays between driving each of the electrode devices," as recited in claim 35, Petruska clearly does not teach that such delays "are timed to the first velocity of the propagation of the body-generated action potentials so as to minimize undesired blocking of the body-generated action potentials," as recited in the claim.

US Patents 5,215,086 and 5,540,730 to Terry neither teach nor suggest a plurality of electrode devices configured to be coupled at adjacent ones of longitudinal sites that are separated by at least 2 mm, and a control unit configured to sequentially drive the electrode devices to apply respective currents, as recited in claim 35. The Terry patents teach only a single "electrode assembly 25" (col. 9, line 53 - col. 10, line 24 and Fig. 3 of the '086 patent, and col. 8, line 51 - col. 9, line 14 and Fig. 4 of the '730 patent), which comprises two electrodes 25-1 and 25-2. Even if one were to construe electrodes 25-1 and 25-2 as the "plurality of electrode devices" recited in claim 35, there is no indication in the Terry patents that the two electrodes are driven to sequentially apply respective currents, as recited in claim 35. Furthermore, because the Terry patents do not teach "delays between driving each of the electrode devices," as recited in claim 35, the Terry patents clearly do not teach that such delays "are timed to the first velocity of the propagation of the body-generated action potentials so as to minimize undesired blocking of the body-generated action potentials," as recited in the claim.

Applicants thus respectfully submit that independent claim 35 is not obvious over Petruska in view of either of the Terry patents.

Independent claim 87

The amendments made to independent claim 87 include that the apparatus comprises "a plurality of electrode devices, configured

to be coupled to respective longitudinal sites of longitudinal nervous tissue of the subject having first and second types of nerve fibers, through which body-generated action potentials propagate at first and second velocities, respectively," and that the control unit is configured to "sequentially drive the electrode devices to[[:]] apply to the nervous tissue [[a]] respective currents, with delays between driving each of the electrode devices that are timed to the first velocity of the propagation of the body-generated action potentials so as to minimize undesired blocking of the body-generated action potentials propagating through the first type of the nerve fibers."

In contrast, Petruska neither teaches nor suggests a plurality of electrode devices configured to be coupled to respective longitudinal sites, and a control unit configured to sequentially drive the electrode devices to apply respective currents, with delays between driving each of the electrode devices that are timed to the first velocity of the propagation of the body-generated action potentials so as to minimize undesired blocking of the body-generated action potentials propagating through the first type of the nerve fibers, as recited in claim 87. Even if one were to construe Petruska's "pair of electrodes 10 and 11" (col. 4, lines 3-4, and Fig. 1, and Fig. 1) as the "plurality of electrode devices" recited in claim 87, Petruska's signal generator 15 (col. 4, line 14, and Fig. 1) is not configured to sequentially drive electrodes 10 and 11 to apply respective currents, as recited in claim 87. Instead, signal generator 15 drives electrodes 10 and 11 to simultaneously apply a single current, with one of the electrodes serving as the cathode and the other as the anode: "The smaller electrode 11 acts as the conduction. [sic] blocking anode while the larger electrode 10 serves as the cathode, as a result of connection to the corresponding polarity output terminals of a DC signal generator 15" (col. 4, lines 11-13). Furthermore, because

Petruska does not teach "delays between driving each of the electrode devices," as recited in claim 87, Petruska clearly does not teach that such delays are "timed to the first velocity of the propagation of the body-generated action potentials so as to minimize undesired blocking of the body-generated action potentials," as recited in the claim.

US Patents 5,215,086 and 5,540,730 to Terry neither teach nor suggest a plurality of electrode devices configured to be coupled to respective longitudinal sites, and a control unit configured to sequentially drive the electrode devices to apply respective currents, as recited in claim 87. The Terry patents teach only a single "electrode assembly 25" (col. 9, line 53 - col. 10, line 24 and Fig. 3 of the '086 patent, and col. 8, line 51 - col. 9, line 14 and Fig. 4 of the '730 patent), which comprises two electrodes 25-1 and 25-2. Even if one were to construe electrodes 25-1 and 25-2 as the "plurality of electrode devices" recited in claim 87, there is no indication in the Terry patents that the two electrodes are driven to sequentially apply respective currents, as recited in claim 87. Furthermore, because the Terry patents do not teach "delays between driving each of the electrode devices," as recited in claim 87, the Terry patents clearly do not teach that such delays "are timed to the first velocity of the propagation of the body-generated action potentials so as to minimize undesired blocking of the body-generated action potentials," as recited in the claim.

Applicants thus respectfully submit that independent claim 87 is not obvious over Petruska in view of either of the Terry patents.

Independent claim 111

The amendments made to independent claim 111 include "sequentially driving [[a]] currents into respective longitudinal sites of a vagus nerve ~~longitudinal nervous tissue~~ of the subject

having a first set of fibers and a second set of fibers, through which first body-generated action potential propagate at a first velocity, and second body-generated action potentials propagate at a second velocity, respectively, the first set of fibers having diameters generally different from diameters of the second set of fibers, with delays between driving each of the currents that are timed to the first velocity so as to minimize undesired blocking of the first body-generated action potentials propagating through the first set of fibers."

In contrast, Petruska neither teaches nor suggests sequentially driving currents into respective longitudinal sites of a vagus nerve, with delays between driving each of the currents that are timed to the first velocity so as to minimize undesired blocking of the first body-generated action potentials propagating through the first set of fibers, as recited in claim 111. Even if one were to construe Petruska's "pair of electrodes 10 and 11" (col. 4, lines 3-4, and Fig. 1, and Fig. 1) as driving a current into "respective longitudinal sites," as recited in claim 111, Petruska's signal generator 15 (col. 4, line 14, and Fig. 1) is not configured to sequentially drive electrodes 10 and 11 to apply currents, as recited in claim 111. Instead, signal generator 15 drives electrodes 10 and 11 to simultaneously apply a single current, with one of the electrodes serving as the cathode and the other as the anode: "The smaller electrode 11 acts as the conduction. [sic] blocking anode while the larger electrode 10 serves as the cathode, as a result of connection to the corresponding polarity output terminals of a DC signal generator 15" (col. 4, lines 11-13). Furthermore, because Petruska does not teach "delays between driving each of the currents," as recited in claim 111, Petruska clearly does not teach that such delays are "timed to the first velocity so as to minimize undesired blocking of the first body-generated action potentials propagating through the first set of fibers," as recited in the claim.

US Patents 5,215,086 and 5,540,730 to Terry neither teach nor suggest sequentially driving currents into respective longitudinal sites, as recited in claim 111. The Terry patents teach only a single "electrode assembly 25" (col. 9, line 53 - col. 10, line 24 and Fig. 3 of the '086 patent, and col. 8, line 51 - col. 9, line 14 and Fig. 4 of the '730 patent), which comprises two electrodes 25-1 and 25-2. Even if one were to construe electrodes 25-1 and 25-2 as driving a current into "respective longitudinal sites," as recited in claim 111, there is no indication in the Terry patents that the two electrodes are driven to sequentially apply respective currents, as recited in claim 111. Furthermore, because the Terry patents do not teach "delays between driving each of the currents," as recited in claim 111, Petruska clearly does not teach that such delays are "timed to the first velocity so as to minimize undesired blocking of the first body-generated action potentials propagating through the first set of fibers," as recited in the claim.

Applicants thus respectfully submit that independent claim 111 is not obvious over Petruska in view of either of the Terry patents.

Dependent claims

All of the other pending claims depend directly or indirectly from claims 35, 87, and 111, and thus are also in condition for allowance, being of narrower scope than the allowable independent claims from which they respectively depend.

Related Patent

Applicants again draw the Examiner's attention to US Patent US 6,600,954 to Cohen et al., which is assigned to the assignee of the present application. This patent, including its claims, may be relevant to examination of the present application.

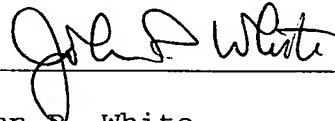
Applicants: Ehud Cohen, et al.
Serial No.: 10/722,589
Filed: November 25, 2003
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Notice of allowance of the present application is respectfully requested.

If a telephone interview would be of assistance in advancing prosecution of the subject application, applicants' undersigned attorney invites the Examiner to telephone him at the number provided below.

No fee, other than the \$130.00 fee for a one (1) month extension of time, is deemed necessary in connection with the filing of this Amendment. However, if any additional fee is required, authorization is hereby given to charge the amount of such fee to Deposit Account No. 03-3125.

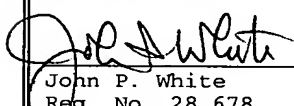
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